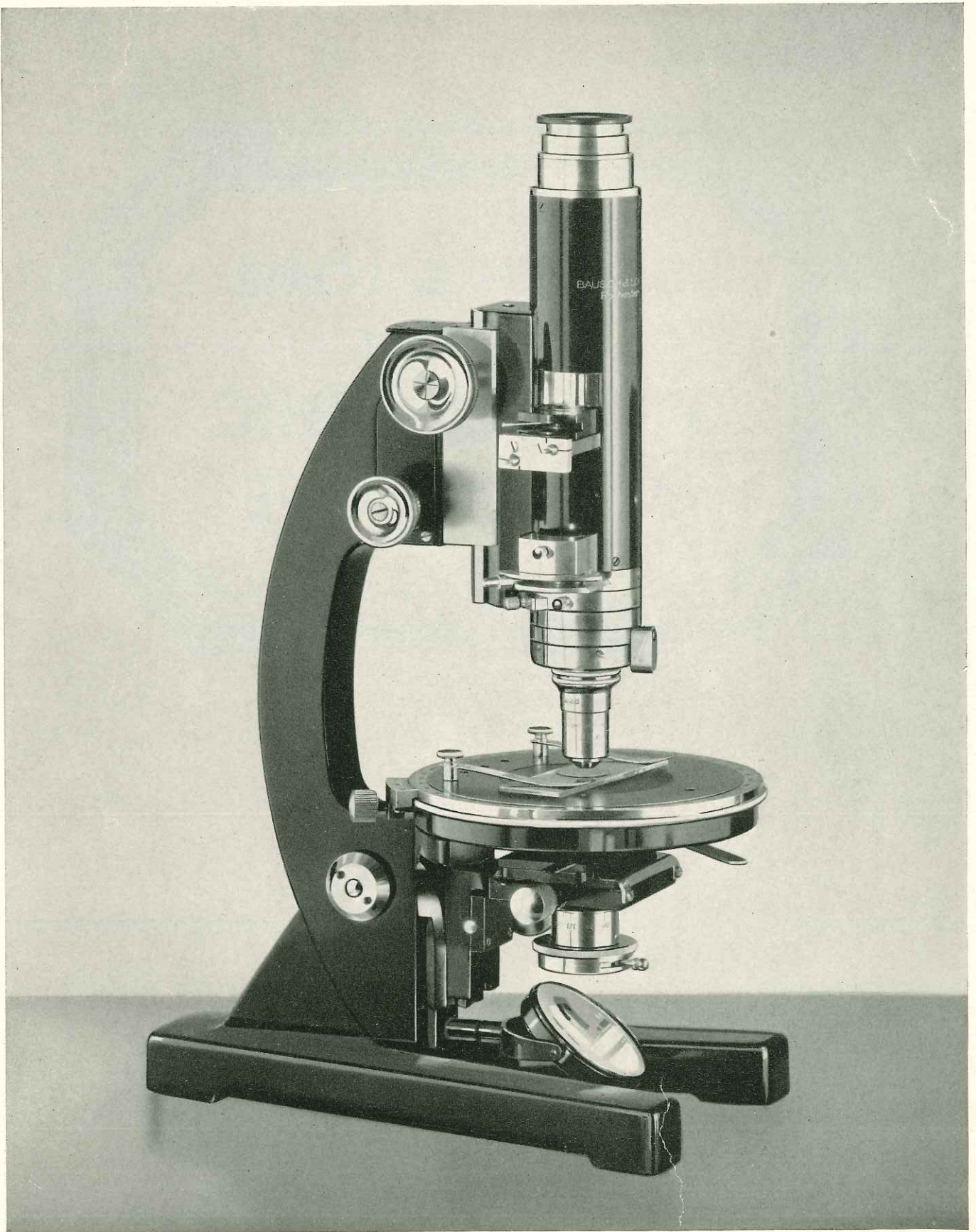


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CATALOG D-137

BAUSCH & LOMB
MODEL LC
PETROGRAPHIC
MICROSCOPE

U. S. Patent Office
AUG. 19 1955
Design Division



BAUSCH & LOMB LC PETROGRAPHIC MICROSCOPE

THE Bausch & Lomb Model LC Petrographic Microscope has the optics and superior facilities required for research work in general, yet is sturdy enough for years of routine work in teaching or industry.

Its outstanding features are: Interchangeable condensers (1.10 N.A. and 1.40 N.A.); extra clearance between arm and center of stage; long coarse adjustment rack and auxiliary slide for increased working distance; large diameter eyepieces for greater field; new design, quick changing, centerable nosepiece; centering Bertrand Lens focusable by sliding tube; provision for accessories for the measurement of optical characteristics; stable stand; improved polarizer and analyzer; ball bearing stage.

The Body Tube is 39mm in diameter. Notches in the upper edge of the eyepiece tube provide for fixing the azimuth of the eyepiece. The rotatable, graduated analyzer slides in and out of the body tube, and a slot, with dust-proof shutter, for accessories is just beneath the analyzer.

The Bertrand Lens, with iris diaphragm, is mounted in a focusing sleeve above the analyzer. It is centerable by keys in the same manner as the objective. It is of large size—gives a brilliant interference figure. The lens is mounted in a slide, which is easily moved in and out of the optical axis. A dust cover attached to the focusing sleeve protects the Bertrand Lens.

FOCUSING ADJUSTMENTS

To provide adequate clearance between stage and objective an auxiliary slide and extra long rack have been built into the LC giving ample room for using the Federoff Universal Stage, and for the examination of large specimens with vertical illumination. For precise focusing the Model LC Stand is provided with the B&L patented ball-bearing side fine adjustment with 2 micron graduations.

QUICK CHANGE NOSEPIECE

The Nosepiece carries a single objective and permits quick interchange of any number of standard objectives. It

also provides means for accurate and rapid centering of the individual objective so that each may be replaced by another without disturbing the centering accomplished. It consists of two parts: the tube part, and the objective part. The tube part has the usual Society screw thread and attaches to the body tube. The objective part, one for each objective, contains the centering device worked by two keys. The nosepiece is self-compensating for wear.

The Ball-Bearing Stage is circular, revolving, centered, and graduated in single degrees, with each tenth line numbered, the double vernier with clamp screw reading to 3 minutes in both directions. The diameter of the stage is 125mm. It revolves freely, yet has no "float" under high magnifications. The stage is drilled and tapped to receive the Federoff Universal Stage.

COMPLETE SUBSTAGE ASSEMBLY

The substage is focusable by diagonal rack and pinion and carries the polarizer and condenser. The removable swing-out condenser is mounted on a slide over the polarizer. Dark field and regular microscope condensers can be adapted to the substage.

The 1.10 N.A. condenser is equipped with an iris diaphragm and is carried

on a sliding mount. For low power observation the upper lens of the condenser can be swung out (leaving 0.28 N.A.), enlarging the illuminated field.

An Achromatic Condenser, 1.40 N.A., with iris diaphragm interchangeable with the standard 1.10 N.A., is available. This is a three-lens condenser of the achromatic type. With the top lens removed the numerical aperture is 0.65 and with upper two lenses removed the numerical aperture is 0.28.

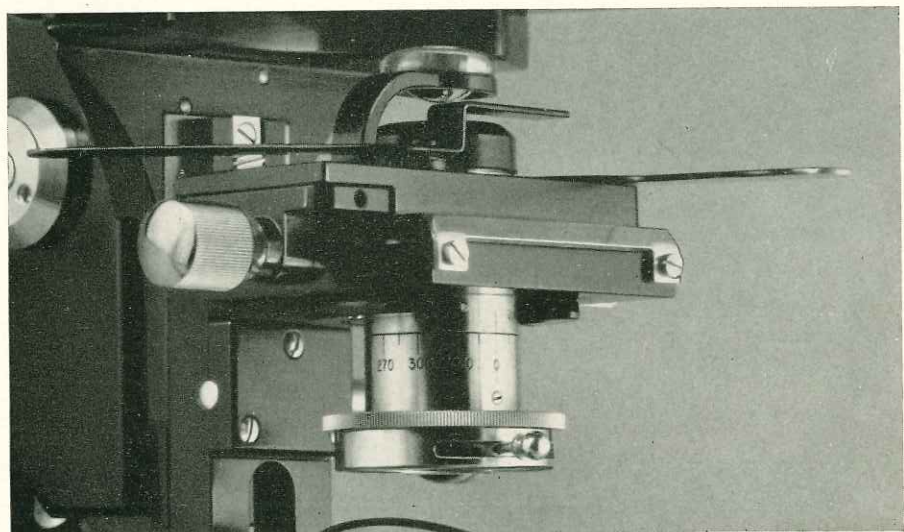
Each condenser is fitted with an adjustable shadow plate to facilitate Becke line tests for index measurements.

POLARIZER AND ANALYZER

The Polarizer is a Glan-Thompson prism in a rotatable mount fitted with an iris diaphragm, and is removable from the substage. This polarizer, with glass dust covers at each end to protect the prism, is graduated in 15 degree intervals, and can be rotated full 360°. A detent locates the zero position.

The Analyzer is of the stigmatic tube type, with a 12mm Ahrens prism, which slides between the stigmatizing lenses and is rotatable through 90°, graduated in 5° intervals. The stigmatizing lenses are not carried on the Ahrens prism mount, but are fixed permanently in the body tube, so that no change in magnification results when

The condenser is mounted on a slide over the polarizer.



Description	Catalog Number
LC PETROGRAPHIC MICROSCOPE with large diameter eyepiece tube; including focusable Bertrand Lens; pinhole cap; ball bearing, revolving, centered stage, with stage clips; rotating Ahrens prism analyzer; quick-change, centering nosepiece; Glan-Thompson polarizer, with iris diaphragm; 1.10 N.A. condenser, with iris diaphragm; mirror; adapter for standard diameter eyepieces; quartz wedge; quarter wave plate; full wave plate; in wood case with accessory compartments; with either of the following recommended equipments: Two Achromatic Strain-Free Objectives, 10×, (16mm), 0.25 N.A., and 45×, (4mm), 0.85 N.A.; two objective holders, and two Huygenian eyepieces, large diameter with cross-hairs and focusing eyelenses, 7.5× and 10×. Three Achromatic Strain-Free Objectives, 2.6×, (40mm), 0.08 N.A., 10×, (16mm), 0.25 N.A., and 45×, (4mm), 0.85 N.A.; three objective holders, and three Huygenian eyepieces, (large), with cross-hairs and focusing eyelenses, 5×, 7.5×, and 10×.....	31-28-61-04
OPTIONAL EQUIPMENT AT ADDITIONAL COST	
<i>(For Bi-refringence measurement, one each required)</i>	
Universal Holder and Positive Eyepiece.....	31-51-41
Quartz Compensator, graduated.....	31-51-42
Cap Analyzer, (Polaroid), rotatable, graduated.....	31-57-48
Achromatic Immersion Condenser, 1.40 N.A., with iris diaphragm and Becke eccentric shutter.....	31-58-42
Attachable Mechanical Stage, graduated.....	31-59-54
REPLACEMENTS	
Pinhole Cap, large diameter (one regularly included).....	31-50-23
Quarter Wave Plate, 1.47 Mμ (one regularly included).....	31-51-54
Quartz Wedge, I-III order (one regularly included).....	31-51-56
Full Wave Plate, 550 mμ (one regularly included).....	31-51-60
Achromatic Immersion Condenser, 1.10 N.A., with iris diaphragm and Becke eccentric shutter (one regularly included).....	31-58-41
STRAIN-FREE, ACHROMATIC OBJECTIVES	
2.6×, 40mm, 0.08 N.A., dry.....	31-09-07-01
4×, 32mm, 0.10 N.A., dry.....	31-09-09-01
6×, 22.7 mm, 0.17 N.A., dry.....	31-09-18-01
10×, 16mm, 0.25 N.A., dry.....	31-09-22-01
21×, 8mm, 0.50 N.A., dry.....	31-09-27-01
45×, 4mm, 0.85 N.A., dry.....	31-09-31-01
97×, 1.8mm, 1.25 N.A., oil.....	31-09-71-02
98×, 1.8mm, 1.30 N.A., Fluorite, oil.....	31-09-73-02
Objective Holder for Quick-Change Nosepiece (Must be ordered separately for each objective, except those supplied as regular equipment).....	31-19-12
ACCESSORIES FOR REFLECTED LIGHT	
Vertical Illuminator Body; with quick change, centering nosepiece; one objective holder; plane, coated, clear glass and prism reflectors; iris diaphragm and condenser; mounted in side tube, with illuminating unit, and resistance for 115-V, D.C. or A.C.....	31-34-43-11
Same as 31-34-43-11 but with transformer for 115-V., 60-cycle A.C. in place of resistance.....	31-34-43-12
Compensating Lens, required when using Metallurgical objectives on vertical illuminator. Must be ordered with vertical illuminator, at extra cost.....	31-34-36
Polaroid Polarizer, fits in side tube on 31-34-43-11 and 31-34-43-12 Vertical Illuminators.....	31-34-95
STRAIN-FREE, METALLURGICAL, BALCOATED, ACHROMATIC OBJECTIVES, FOR OPAQUE SPECIMENS	
13×, 16mm, 0.25 N.A.....	42-33-20
37×, 6mm, 0.65 N.A.....	42-33-28

introducing or removing the analyzer, and no change in focus is required. On each end of the analyzer prism is a glass plate for protection of the faces.

EYEPIECES AND OBJECTIVES

The Eyepieces are of the Huygenian type of large diameter with large field, and are equipped with cross hairs and focusing eye lenses. An adapter for taking a standard diameter eyepiece and accessories is included.

The Objectives are achromatic—selected for strain-free characteristics, mounted in threadless cells, without cement. They are carried in a drawer type case, within the large microscope cabinet.

The Mirror, 55mm in diameter, has plane and concave surfaces. It is adjustable in two planes and is mounted in a fork. The mirror can be swung off the optical axis for obtaining oblique illumination. Its fork mount slides vertically on the bar.

OPTIONAL EQUIPMENT

Accessories included are a quartz wedge, full wave plate (red of the first order), a quarter wave plate, and pinhole cap. The pinhole cap fits the eyepiece tube for observing interference figures after Lasaulx method.

Mechanical Stage No. 31-59-54 fits directly into the stage clip holes.

The finish is chromium and black, alcohol- and reagent-resistant.

The Case is hardwood, highly polished, with convenient fittings for eyepieces and covered drawer for objectives and accessories (wedge and retardation plates).

Prices are subject to change without notice. Orders are subject to acceptance at Rochester, N. Y., U. S. A., at prices prevailing at time of shipment. Orders for standard items may be cancelled if not wanted because of price advance. Excise taxes or other governmental charges will be added wherever applicable. Shipments to points outside Continental United States of America and to its territories, dependencies and possessions, except Hawaii and Alaska, are not subject to excise taxes. Delivery dates are estimated and cannot be guaranteed.

The illustrations and descriptions herein apply to Bausch & Lomb scientific instruments of current production. However, due to its constant efforts to improve and refine, this company reserves the right to supply apparatus differing from that described herein or shown in illustrations.

BAUSCH & LOMB OPTICAL CO.

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